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(1) The *Dinotherium giganteum* from the upper miocene of Attica, the tibia of which, brought from Pikermi by M. Gaudry, measures 0.94m. in length, representing a height of 4.43m. at the shoulders, and 4.96m. at the top of the head. (2) The *Elephas antiquus*, found in the quaternary near Paris, height at the withers 3.95, and to the summit of the head 4.42m. (3) The *Elephas meridionalis* from the pliocene of Durfort, which is the largest entire mammalian skeleton (fossil) yet known, and is now at the Palæontological Museum in the Jardin des Plantes; its height at the shoulders is 3.77m., and it measures 4.42m. to the top of the head. (4) The *Mastodon americanus* from the quaternary of the United States measures 3.55m. to the top of the head. (5) The *Elephas primigenius*, or mammoth of the Siberian quaternary, is 3.42m. to the top of the head.

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## MINERALOGY AND PETROGRAPHY.<sup>1</sup>

PETROGRAPHICAL NEWS.—In a late number of the *American Geologist*,<sup>2</sup> Messrs. Herrick, Clarke and Deming have a short article on some American norites and gabbros. Three rocks are described. The first is from Marshall Co., N. C., and is called olivine-norite. Its feldspathic constituent is labradorite, and its pyroxene is regarded as bronzite. The second—a porphyritic diorite, contains garnet and apatite. It is a facies of the norite. The Duluth gabbros are finally taken up and briefly described. In one phase of this rock the authors think they have found feldspar crystals, with a central core of labradorite, surrounded by a zone of orthoclase. Very little new is stated in regard to these rocks, except the view that the orthoclase-gabbros may be derived by the action of solutions (emanating from acid rocks) upon olivine-gabbro. The paper contains the statements of many important views, which, however, will not generally be accepted by petrographers unless substantiated by many more facts than the authors have been able to discover.—An instructive paper on some English tachylites is that by Mr. Cole in the *Quarterly Journal of the Geological Society*.<sup>3</sup> In it he describes a glassy basalt which exhibits all the stages in the transition from a glassy to the completely spherulitic forms so familiar among acid lavas. The spherulites are sometimes composed of an intergrowth of gray and brown fibres, which show the

<sup>1</sup> Edited by Dr. W. S. Bayley, Colby University, Waterville, Maine.

<sup>2</sup> June, 1888, p. 339.

<sup>3</sup> May, 1888, p. 300.

strongest absorption in reversed position, the brown fibres becoming darker when their long axes are parallel to the short axes of the nicols, and the gray fibres when their transverse axes are parallel to this direction. As the result of his observations, Cole is inclined to regard variolite as a perlitic tachylite, whose perlitic cracks have been filled with secondary minerals.—Chelius<sup>1</sup> divides the dyke rocks cutting the eastern and the western areas of crystalline schists in Spessart and Odenwald as granite-porphyrries and minettes in the latter area, and kersantites in the former. The kersantites are panidiomorphic aggregates of plagioclase and augite, together with hornblende, mica, quartz, apatite and a few rare minerals. The panidiomorphic structure passes into the holocrystalline porphyritic toward the edges of the dykes. The minettes of the Odenwald fall into two groups, the minettes proper, and the vogesites or minettes poor in mica. The latter embrace both augitic and hornblendic varieties. The minettes sometimes contain augite and sometimes biotite as their principal ingredient. The granite porphyries possess no peculiarity of structure or composition to which attention need be called.—The article on the Archæan Geology of Missouri, to a preliminary notice of which attention was directed in these pages a short time ago, has lately made its appearance.<sup>2</sup> In addition to the interesting observations already noted, it may be remarked that Mr. Haworth finds the nature of the plagioclase in the porphyrites from this region to be in no way connected with the presence or absence of quartz in the rocks. A more basic feldspar is sometimes found in a porphyrite containing free quartz, than in one in which no quartz is visible. The ground mass of a certain class of the porphyries resembles in structure the appearance known as pœcilitic. This is due to the inclusion of small particles of feldspar in quartz.—The elæolite-syenite<sup>3</sup> from the middle Transvaal, South Africa, consists of apatite, sphene, augite, hornblende, nepheline, feldspar, sodalite and zeolites in the order of their age. The porphyritic feldspar, probably anorthite, contains inclusions of all the older constituents. The augite occurs in two generations. The larger crystals have the optical properties of common augite, and contain a small percentage of alkalies. The mineral of the second generation is grouped into little bundles, and has the properties of acmite. It contains both alkalies and manganese. The nepheline is for the most part fresh; but in some cases has undergone alteration into zeolites.—A typical chlorite-schist has been discovered by Cathrein<sup>4</sup> at Gerlos, in the Tyrol. In a muscovite-quartz

<sup>1</sup> Neues Jahrb. f. Min., etc., 1888, ii., p. 67.

<sup>2</sup> Inaug. Diss., Johns Hopkins Univ., 1888, and Amer. Geologist, May and June, 1888.

<sup>3</sup> E. A. Wülfing. Neues Jahrb. f. Miner., 1888, ii., p. 16.

<sup>4</sup> Verh. d. k. k. Geol. Reichsanst.

background are porphyritic chlorite crystals with all the characteristics of chloritoid. Graphite, ankerite, zircon, tourmaline and rutile are the prominent accessory constituents. The rutile occurs as needles penetrating all the other minerals.—In an article on the bituminous rocks of Nullaberg, in Sweden, Törnebohm<sup>1</sup> gives the results of his examination of the bituminous matter existing in the archæan schists of that region. The locality has been known for some time, and is quite noted as having afforded data for arguments in favor of the existence of life in the globe during archæan time. The rock in which the organic matter occurs is a schist composed of microcline, chlorite, a little garnet and other accessory components. It is interstratified with gneiss, and is about fifteen metres in thickness. A part of the organic matter is in little lumps and irregularly shaped pieces, which are thought by the author to be original. It is sometimes entirely surrounded by microcline. Other bituminous substances fill cracks and cavities, which were probably produced in the rock by dynamic forces. This is younger in age than the rock itself, and was probably produced by the saturation of shattered rock by liquid hydrocarbons, which afterwards dried out, leaving a deposit of asphaltum.

MISCELLANEOUS.—In connection with the article of Törnebohm, referred to above, it may be of interest to call attention to a recent article by Engler,<sup>2</sup> on the origin of petroleum. The experimental work of this chemist substantially re-enforces the theory which supposes petroleum to be the result of the distillation of the remains of marine animals at a low temperature and under pressure. Engler has obtained a series of oils, very similar in composition to the most prominent hydrocarbons of petroleum, by the destructive distillation of menhaden under a pressure of ten atmospheres, and at a temperature of 320°–400°.

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## ZOOLOGY.

ZOOLOGICAL NEWS.—PORIFERA.—Vol. XXV. of the Challenger Reports is entirely devoted to the Tetractinellidæ, which are illustrated by forty-four plates. Professor Sollas classifies the Porifera as follows: Class (1) Megamastictora, containing the single sub-class Calcareia; and Class (2) Micromastictora, including

<sup>1</sup> Neues Jahrb. f. Min., etc., 1888, ii., p. 1.

<sup>2</sup> Ber. d. d. Chem. Gesell., 1888, p. 1816.